REMARKS

By this Response, Applicants propose to amend claim 19. Claims 1-18, 20, 24, 26, 28-34, 36, 38-40, 42, 44-48, and 50-52 have been previously canceled. No further claims have been canceled or added. Claims 19, 21-23, 25, 27, 35, 37, 41, 43, 49, and 53-56 remain pending. Support for the amendment to claim 19 can be found throughout the as-filed specification and claims of the original application. No new matter has been added.

In the event that the Examiner declines to enter the present Amendment, and (i) any portion of the present Amendment would place some of the claims in better form for appeal if a separate paper were filed containing only such amendments or (ii) any proposed amendment to any claim would render that claim allowable, Applicant respectfully requests that the Examiner inform Applicant of the same pursuant to MPEP §714.13.

Interview Summary

At the outset, the Examiner is thanked for the consideration given during the Interview of November 17, 2008. During the Interview, all claims and prior art of record were discussed, along with proposed claim amendments thereto. The remaining substance of the Interview can be found throughout the following discussion.

Objection to the Specification

In the Office Action, the Examiner objected to the specification as failing to provide proper antecedent basis for the claimed subject matter.

Responsive to the Examiner's objection, it is respectfully submitted that the subject matter recited in claim 5 of the original application has now been included in the specification at page 7, beginning at line 25. No new matter has been entered. Withdrawal of the objection is respectfully requested.

Rejections Under 35 U.S.C. § 112, Second Paragraph

In the Office Action, the Examiner rejected claims 19, 21-23, 25, 27, 35, 37, 41, 43, 49 and 53-56 under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This rejection is respectfully traversed.

With regard to claim 19, the Examiner is unclear whether or not the intended heating and cooling devices must correspond to the very same segment. In response, claim 19 has been amended to further clarify that each of a heating and cooling device correspond to a same segment. Support for this relationship is found throughout the specification and claims, for example FIGS. 1 and 2 and page 7, lines 4-5 reciting "(m)ounted on each of the bases 5a is a heat exchanger 6, a Peltier element 7 and a segment 8 of a reaction vessel receiving element." (Emphasis added).

Further, it is unclear to the Examiner whether or not the intended structure includes any actuating means or a controller. In response, claim 19 has been amended to include a "control unit". Further detail of the control unit can be found in dependent claim 56 which further limits the subject matter of claim 19 by reciting a control unit for actuating the two or more devices.

Additionally, it is unclear to the Examiner whether or not the recitation of the reaction vessel receiving element being configured for holding specifically a standard micro-titer plate imparts any limitation to the dimensions of the receiving element. In response, it is respectfully submitted that a standard microtiter plate is in fact standardized in the industry as the Examiner understood in the Interview. Further, the recitation of a "standard microtiter plate" has now been positively recited in the claim as spanning an entirety of the reaction vessel receiving element. This recitation precludes the Examiner's characterization of a standard microtiter plate resting on, for example, adjacent corners of the *Potter et al.* modules 14.

With regard to claim 25, the Examiner questions how inserting insulators into an air filled gap between the segments can insulate the segments from each other. In response, it is respectfully submitted that modes of heat transfer such as radiation or convection that can travel through air can be blocked by an insulator. Accordingly, no indefiniteness exists with the subject matter of either claim 23 or 25.

Accordingly, all claims are now believed to be fully definite within the meaning of 35 U.S.C. § 112, second paragraph, and the rejections with respect thereto should be withdrawn.

Rejections Under 35 U.S.C. § 103(a)

In the Office Action, the Examiner rejected claims 19, 21-23, 25, 27, 35, 37 41, 43, 49 and 53-56 under 35 U.S.C. § 103(a) as being unpatentable over *Gordon et al.* (U.S. Patent No. 5,601,141) in view of *Potter et al.* (U.S. Patent No. 5,819,842). This rejection is respectfully traversed.

Claim 19 is directed to a system for optimizing parameters for PCR, the system comprising a reaction vessel receiving element physically divided into two or more segments that are thermally insulated from one another; a standard microtiter plate spanning an entirety of the reaction vessel receiving element; two or more physically distinct devices for heating and cooling the reaction vessel receiving element, wherein each device is aligned with and dedicated to only one segment; and a control unit for actuating the system, wherein the devices are actuated independently of one another to set and maintain different temperatures in two adjacent segments; wherein the system provides different temperatures to the segments during a temperature cycle to optimize the parameters for PCR.

It is the Examiner's position that *Gordon et al.* disclose a modular thermocycler having a base and an array of modules mounted on the base, and that the modules are formed in three layers – a sample plate, a heater plate, and a cooling plate. The Examiner acknowledges that each module of *Gordon et al.* supports a single microtiter plate but suggests that a single microtiter plate could span multiple modules if, for example, each corner of a standard microtiter plate were positioned on adjacent modules. *Potter et al.* are applied as disclosing a sample plate 10 having wells 13, where the temperature in each well is independently controlled by heat controlling segments 21 of sample vessel receiving structure 20. It is the Examiner's position that it would have been obvious to modify *Gordon et al.* such that is would provide individual and independent heating/cooling of separate portions of a single standard microtiter plate in view of *Potter et al.*

To the contrary, it is respectfully submitted that the Examiner's interpretation regarding the standard microtiter plate in *Gordon et al.* is no longer applicable in view of the positive recitation of a standard microtiter plate spanning an entirety of the reaction vessel receiving element. Such a configuration not available from *Gordon et al.* at least because of the statement therein at column 1, lines 39-41, that prior devices "operate on only one plate" and the problem of expanding those devices to handle multiple plates. Thus, the purpose of *Gordon et al.* is to "provide a cycler . . . which can be adapted to process a variety of sample holders", each with their own microtiter plate. *See* column 2, lines 1-3 of *Gordon et al.* To provide a single standard microtiter plate spanning an entirety of the plural modules of *Gordon et al.* is expressly against the disclosure thereof.

Further, the Examiner states that it would be obvious to modify *Gordon et al.* to provide individual and independent heating/cooling of separate portions of a single standard microtiter plate, based on the disclosure of *Potter et al.* To the contrary, *Potter et al.*, while disclosing heating and cooling elements, fails to disclose a physically distinct device for heating and cooling the reaction vessel receiving element, the device aligned with and dedicated to only one segment of a reaction vessel receiving element. Instead, the heater element 22 of *Potter et al.* is embedded in a matrix 24 which is in turn seated on a cooling arrangement 25/26/27, which cooling arrangement clearly spans the entire unit and thus all heater elements 22 in FIG. 2 thereof. Therefore, *Potter et al.* fail to teach or suggest a physically distinct device for heating and cooling the reaction vessel receiving element, wherein each device is aligned with and dedicated to only one segment.

Gordon et al. also fail to teach or suggest two or more physically distinct devices for heating and cooling the reaction vessel receiving element, wherein each device is aligned with and dedicated to only one segment. Instead, a cooling member 18 spans an entire row of modules 14 and is, therefore, neither aligned with nor dedicated to only one module.

Therefore, the cooling device of *Potter et al.* is essentially the same as that of *Gordon et al.* and fails to modify *Gordon et al.* in a manner which would render the claimed invention obvious.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 19, 21-23, 25, 27, 35, 37 41, 43, 49 and 53-56 under 35 U.S.C. § 103(a). Applicants respectfully submit that claims 21-23, 25, 27, 35, 37 41, 43, 49 and 53-56 are in condition for allowance, at least by virtue of their dependency from allowable claim 19.

Double Patenting Rejection

Claims 19 and 41 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-2 of co-pending Application No. 11/470,463, claim 18 of co-pending Application No. 11/450,442, claim 18 of co-pending Application No. 11/651,986, and claim 26 of co-pending Application No. 11/651,985.

Responsive to the Examiner's indication, Applicants request that this rejection be held in abeyance until patentable claims are identified in the applications.

CONCLUSION

Applicants respectfully request that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing all claims into condition for allowance. Applicants submit that the proposed amendments of claim 19 do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships claimed were either earlier claimed or inherent in the claims as examined. Therefore, this Amendment should allow for immediate action by the Examiner.

Furthermore, Applicants respectfully point out that the final action by the Examiner presented some new arguments as to the application of the art against Applicant's invention. It is respectfully submitted that the entering of the Amendment would allow the Applicants to reply to the final rejections and place the application into condition for allowance.

Finally, Applicants submit that entry of the amendment would place the application into better form for Appeal, should the Examiner dispute the patentability of the pending claims.

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

Please grant any extensions of time required to enter this response and charge any additional required fees to deposit account 50-2961.

Respectfully submitted,

Dated: 11-26-2008

By: Barbara A. Fisher

Barbara A. Fisher
Reg. No. 31,906

MH2 TECHNOLOGY LAW GROUP LLP
1951 KIDWELL DRIVE, SUITE 550
TYSONS CORNER, VA 22182
TEL: 703.917.0000 X 121